APPENDIX I
UltraSystems Biological Survey

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BIOLOGICAL SURVEY

HAY RANCH WATER EXTRACTION AND DELIVERY SYSTEM

Prepared for

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CONTENTS

1 INTRODUCTION

1.1 Biological Survey Objectives

The objective of this Biological Survey is to identify the potential affects of the proposed Hay Ranch Water Extraction and Delivery System on plants and wildlife in the project area, including review of the potential affects of the proposed project on special-status species. Special-status species are native species that have been accorded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels. Special-status species include species that are listed as threatened or endangered ("listed species") by either the U.S. Fish and Wildlife Service (USFWS) or the California Department of Fish and Game (CDFG).

The special-status species and sensitive biological resources present, or potentially present, onsite were identified through a literature review using the following resources: the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California,[1] Calflora Database,[2] compendia of special-status species published by CDFG,[3,4] CDFG's California Natural Diversity Database (CNDDB),[5] and the West Mojave Plan Draft EIR/EIS.[6] Ten special-status species potentially occur in the project area. These are shown in Tables 1 and 2.

Biological surveys of the project site were conducted in spring 2004 and January 2005 to review current biological conditions.

1.2 Threatened and Endangered Species Summary

No plant species listed as threatened or endangered potentially occur on the project site. No plant species listed as threatened or endangered are known to occur within the region of the project site.

Two listed animal species, the desert tortoise and the Mojave ground squirrel, potentially occur on the project site. The biology, distribution, and local occurrence of the desert tortoise and the Mojave ground squirrel are described in detail in Section 3 of this report.

The project site was surveyed for desert tortoise and sign of desert tortoise.

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[1]/ California Native Plant Society. 2001. Electronic Inventory of Rare and Endangered Vascular Plants of California (electronic records of sensitive species on the USGS 7.5' Condor Peak Quadrangle). California Native Plant Society, Sacramento.

[2]/ CalFlora: Information on California plants for education, research and conservation. [web application]. 2000. Berkeley, California: The CalFlora Database [a non-profit organization]. Available: http://www.calflora.org.

[3]/ California Department of Fish and Game (CDFG), Natural Diversity Data Base. 2003b. Special Plants. Unpublished report available from CDFG, Natural Heritage Division, Sacramento. January.

[4]/ California Department of Fish and Game, Natural Diversity Data Base. 2003c. Special Animals. Unpublished report available from CDFG, Natural Heritage Division, Sacramento. January.

[5]/ California Department of Fish and Game (CDFG), February 5, 2003. *Rarefind 2: A Database Application for the Use of the California Department of Fish and Game Natural Diversity Base.* Sacramento, CA: California Department of Fish and Game.

[6] Bureau of Land Management, 2003. Draft Environmental Impact Report and Statement for the West Mojave Plan A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment. U.S. Dept. of Interior.

Table 1
SPECIAL-STATUS PLANT SPECIES
POTENTIALLY OCCURRING IN THE PROJECT AREA

Species	Status	Blooming Period	Habitat Associations	
			General	Micro
Charlotte's phacelia *Phacelia nashiana*	FSC CNPS List 1B	March to June	Joshua tree woodland, Mojavean desert scrub, pinyon juniper woodland.	Granitic soils; sandy or rocky areas on steep slopes or flats. 1,970 – 7,220 ft.
Darwin mesa milk-vetch *Astragalus atratus* var. *mensanus*	CNPS List 1B	April to June	Great basin scrub, Joshua tree woodland, pinyon juniper woodland. Known from only a few collections near Darwin, Inyo County.	Dry desert slopes and mesas, often sheltering under and entangled in shrubs, in volcanic clay and gravel. 4,460 – 6,070 ft.
Sanicle cymopterus *Cymopterus ripleyi* var. *saniculoides*	CNPS List 1B	April to June	Joshua tree woodland, Mojavean desert scrub. In California, only known from Inyo County.	On sandy soils, often with carbonate; usually found in Joshua tree woodland or creosote bush scrub. 3,280 – 5,450 ft.
Inyo hulsea *Hulsea vestita ssp. inyoensis*	FSC CNPS List 2	April to June	Pinyon juniper woodland, great basin scrub. In California, known only from Inyo and Mono counties.	In volcanic ash on steep slopes. 5,360 – 9,840 ft.
Pinyon rock cress *Arabis dispar*	CNPS List 2	March to June	Joshua tree woodland, pinyon juniper woodland, Mojave desert scrub.	Granitic, gravelly slopes & mesas. Often under desert shrubs that support it as it grows. 3,940 – 7,870 ft.
Creamy blazing star *Mentzelia tridentata*	CNPS List 1B	March to May	Mohave desert scrub.	2,300 – 3,810 ft.

Key:
FE: Federally Listed as Endangered
FT: Federally Listed as Threatened
FPE: Federally Proposed for Listing as Endangered
FPT: Federally Proposed for Listing as Threatened
SE: State-listed as Endangered
ST: State-listed as Threatened
SR: State-Listed Rare
CNPS List 1B: Rare, threatened, or endangered in California and elsewhere.
CNPS List 2: Rare, threatened of endangered in California, but more common elsewhere.

Table 2
SPECIAL-STATUS WILDLIFE SPECIES
POTENTIALLY OCCURRING IN THE PROJECT AREA

Species	Status	Habitat Associations	
		General	Micro
Pale big-eared bat *Corynorhinus townsendii pallescens*	FSC, CSC BLM Sensitive FS Sensitive	Lives in a wide variety of habitats but most common in mesic sites.	Need appropriate roosting, maternity, and hibernacula sites free from human disturbance.
Mohave ground squirrel *Spermophilus mohavensis*	FSC, ST	Open desert scrub, alkali scrub & Joshua tree woodland. Also feeds in annual grasslands. Restricted to Mojave desert.	Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows.
Desert tortoise *Gopherus agassizii*	FT, ST	Most common in desert scrub, desert wash, and Joshua tree woodland. Occurs in almost every desert habitat.	Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.
Owens valley vole *Microtus californicus vallicola*	CSC	Found in wetlands and lush grassy ground in the Owens Valley.	Needs friable soil for burrowing. Eats grasses, sedges & herbs. Clips grass to make runways leading from burrows.

Key:
FE: Federally Listed as Endangered
FT: Federally Listed as Threatened
FPE: Federally Proposed for Listing as Endangered
FPT: Federally Proposed for Listing as Threatened
FSC: Federal Species of Concern
FS Sensitive: Forest Service Sensitive
SE: State-Listed as Endangered
ST: State-Listed as Threatened
CDFG: FP: California Department of Fish and Game Fully Protected Species
CSC: California Special Concern Species
BLM Sensitive: Species (1) that are under status review by the FWS/NMFS: (2) whose numbers are declining so rapidly that Federal listing my become necessary; (3) with typically small and widely dispersed populations; or (4) that inhabit ecological refugia or other specialized or unique habitats.

1.3 Other Special-Status Species Summary

Six special-status plant species and two special-status animal species that are not listed as threatened or endangered potentially occur in the project area. The biology, distribution, and local occurrence of these species are described in detail in Section 3 of this report.

2 PROPOSED ACTION

2.1 Proposed Project

The purpose of the proposed Hay Ranch Water Extraction and Delivery System Project is to develop an injection system to maintain the Coso Geothermal Project's electric production by minimizing the geothermal reservoir decline through the replacement of lost geothermal fluids. In order to accomplish this, ground water will be extracted from two existing wells and piped to one injection well (Well 88-1RD) and the existing injection distribution system.

The two existing North and South Water Wells at the Coso Hay Ranch will be the source of the water. An underground pipeline will be installed from the Northern Well past the Southern Well to a 250,000

gallon capacity collection tank placed on sand bedding. The South Well will be tied into this pipeline. Water from the collection tank would be piped to the existing Coso Geothermal Project to the east.

The proposed pipeline is approximately 10-miles long and proceeds in a generally southeasterly direction from the collection tank along an existing access road, generally rising in altitude to Coso Junction Road. The proposed pipeline crosses Coso Junction Road and proceeds east adjacent to the road along the southern and western edges until just east of the China Lake Naval Weapons Center ("China Lake NWC" or "CLNWC") entry gate. The proposed pipeline would then cross Coso Junction Road just south of the CLNWC gate and proceed easterly for approximately 1 mile on the eastern edge of the road. The pipeline would then cross back over the road to a holding tank within CLNWC Testing Range. From the holding tank the pipeline would proceed southeasterly to the injection well. Preliminary pipe sizes for the project are 12-inch pipes from the water wells to the pump station, 20-inch pipes from the pump station to the high point tank and from the high point tank to the injection well field, and 8-inch injection well piping.

The project site encompasses an approximately 10 mile long corridor with a fifty-foot (50') right of way. The total project site is approximately 65 acres in size, 5 acres for the collecting and holding tanks and approximately 60 acres for the pipeline. Approximately 10 acres of the site is on the Coso Hay Ranch (private land) and approximately 36 acres is on land managed by the Bureau of Land Management (BLM), and approximately 19 acres is on the China Lake NWC.

An electric substation will be constructed adjacent to the North Water Well near the existing Southern California Edison electric transmission line. The substation will be approximately ¼-acre in size.

2.2 Project Location

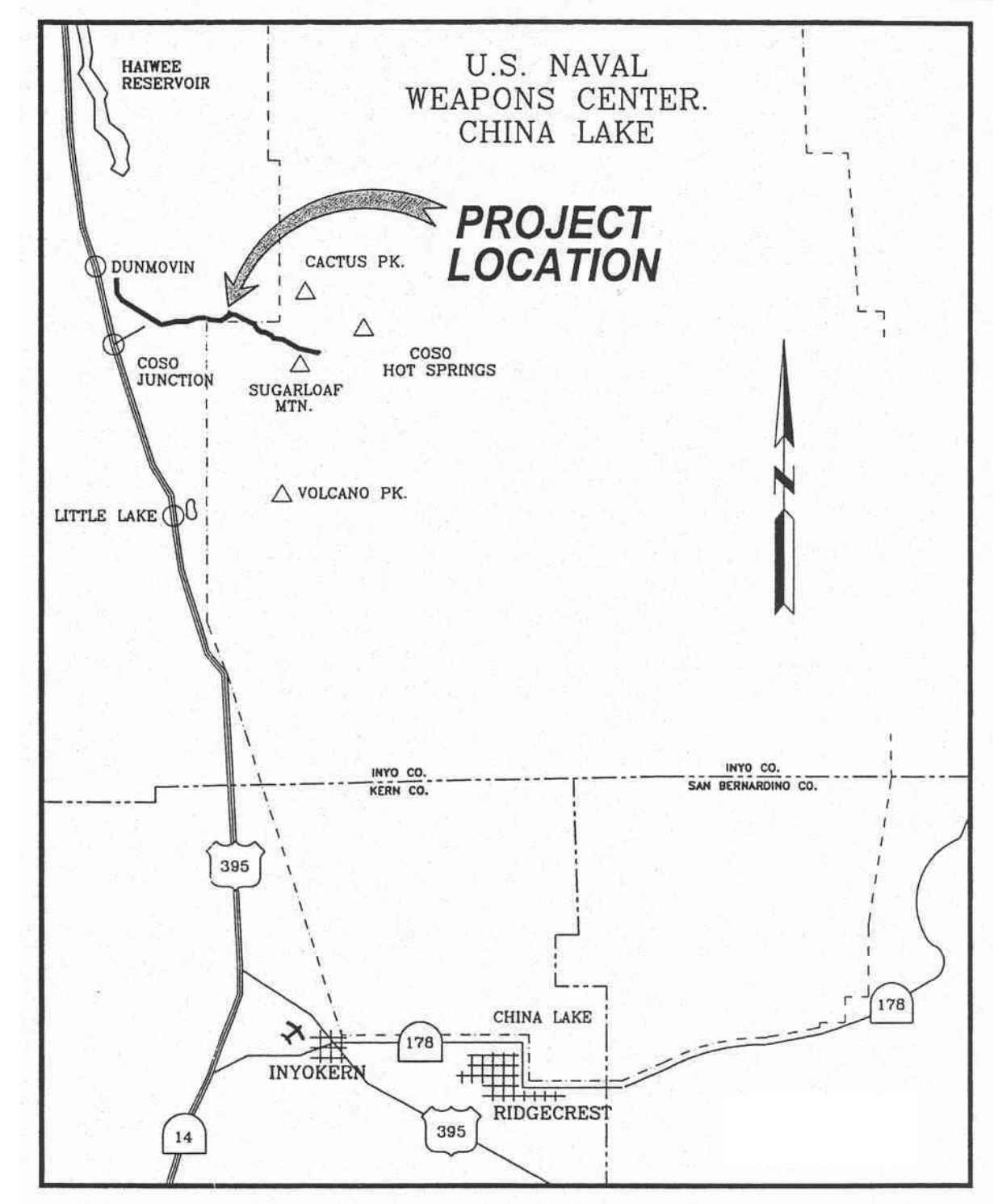
The proposed Hay Ranch Water Extraction and Delivery System Project (Project) is located approximately 35 miles northwest of Ridgecrest, California, in an unincorporated area of Inyo County (Figure 1, Regional Vicinity). The project is mapped on two United States Geological Survey (USGS) 7.5-minute Series Topographic quadrangles, Coso Junction and Cactus Peak (in Township 21 South, Range 37 East, Sections 25, 26, 35, and 36; Township 21 South, Range 38 East, Sections 31, 32, 33, and 34; and Township 22 South, Range 38 East, Sections 3, 2, and 1).[7]

The project site lies immediately east of Highway 395 (Figure 2, Project Area). Approximately 15% of the project is on private land in Rose Valley and the remainder is on public land. The project site encompasses an approximately 10-mile-long corridor extending from the Coso Hay Ranch to the Coso Geothermal Project (Figure 3, Project Site).

2.3 Project Area

The project area is generally flat to rolling topography with elevation varying from 3,200 to 4,300 feet. The western portion of the project area is on private agricultural land while the eastern portion is BLM and military reservation land. The project area is arid Mojave Desert with sparse vegetation. Highway 395 to the west of the project area is a major north south transportation corridor on the east side of the Sierra Nevada Mountains.

[7] Coso Junction and Cactus Peak Topographic Quadrangle Maps. Source: All Topo Maps. Contact: IGAGE Mapping Corporation, P.O. Box 58596, Salt Lake City, UT 84158-9912.



(Not to scale)

Figure 1
REGIONAL VICINITY

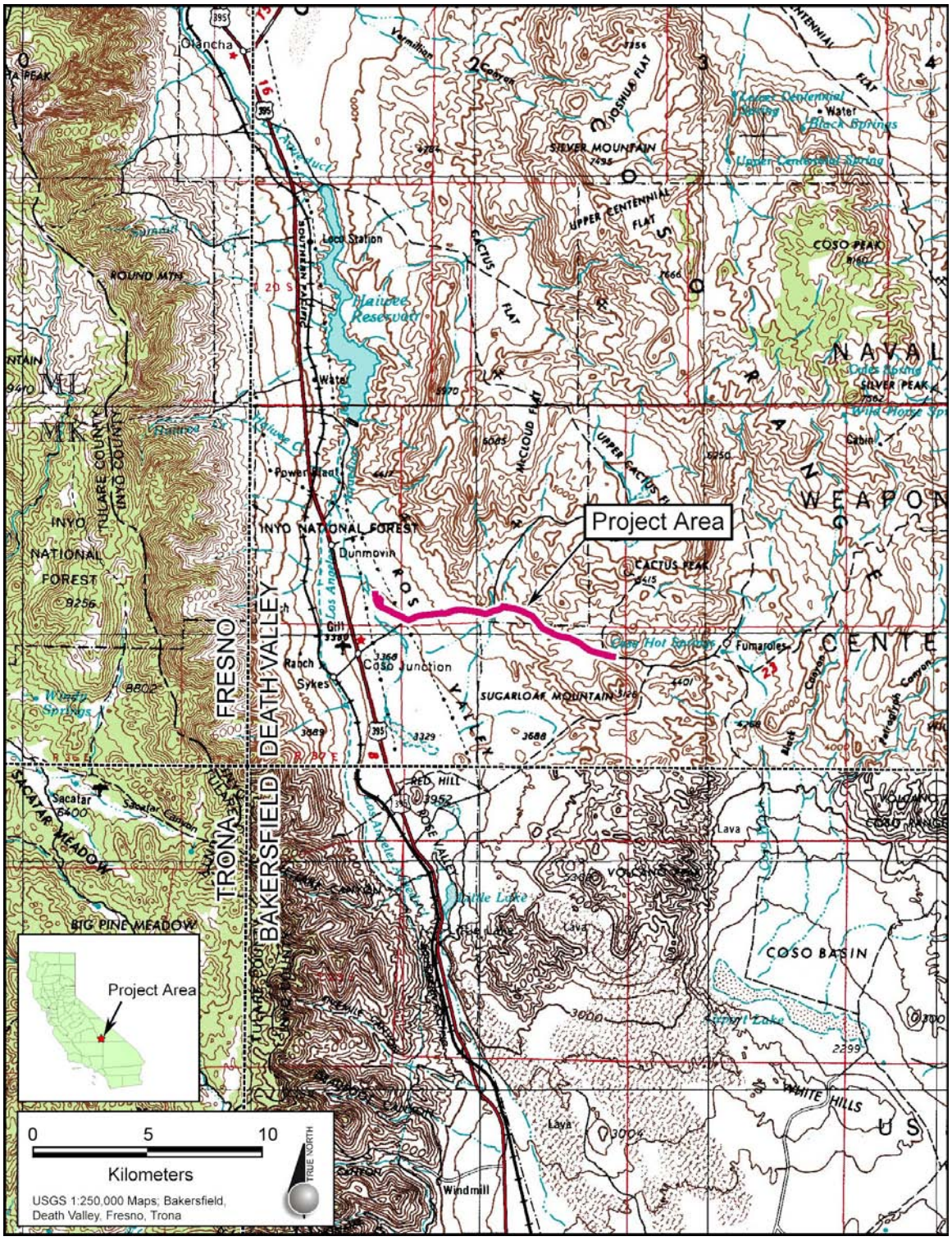


Figure 2
PROJECT AREA

INSERT FIGURE 3 (PROJECT SITE)

2.4 Project Implementation

The project would be implemented with standard techniques including surveying, grading, trenching, and tank construction. Typical equipment such as bulldozers, backhoes, tractor-trailer trucks, welding and fabricating equipment would be used.

2.5 General Habitat Description

The proposed project lies in the western portion of the Mojave Desert, a subdivision of the Mojave Desert Biome that has a distinct flora and fauna.[8] The West Mojave Desert is generally flat and sparsely vegetated with creosote bush and saltbush plant communities dominating the landscape.[9] Most of the west Mojave lies between 2500 and 4000 feet and is considered high desert. Summer temperatures are often above 100°F, in winter snow and frost can occur with temperatures sometimes below 32°F. Annual precipitation is low and quite variable.

Three plant communities, (as defined by CNDDB and/or Sawyer Keeler-Wolf [10, 11]) occur in the project site: creosote-white bursage scrub, allscale scrub and agricultural land. Their occurrence on the project site is described in detail in Section 3 of this report.

2.5.1 Creosote-White Bursage Scrub

Creosote-white bursage scrub is a series within Mojave creosote bush scrub, which is often considered as a collection of series. In creosote-white bursage scrub, creosote bush and white bursage are equally important, and brittlebush can be a third common species. Mojave creosote bush scrub is the most extensive cover type in the Mojave Desert region, covering 57% of the land surface.[12] Perennial shrubs are generally widely spaced in creosote bush scrub, usually with bare ground between. Plant growth occurs during spring and is prevented by winter cold and seasonal drought. Many species of ephemeral herbs may flower in late March and April if the winter rains are sufficient. Other, less numerous species of annuals appear following summer thundershowers.

2.5.2 Allscale Scrub

Allscale scrub is often considered part of the saltbush scrub collection of series with allscale (*Atriplex polycarpa*) as a dominant species. Saltbush scrub is an assemblage of low, grayish shrubs, one to four feet tall, with some succulent species. Allscale series occurs with different associates regionally as suggested by CNDDB categories. Total ground cover is often low, with bare ground between perennial plants.

[8] Bureau of Land Management (BLM), 2003. Draft Environmental Impact Report and Statement for the West Mojave Plan, A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment. Vols. I and II. U.S. Dept Interior.

[9] Bureau of Land Management (BLM), 2003. Draft Environmental Impact Report and Statement for the West Mojave Plan, A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment. Vols. I and II. U.S. Dept Interior.

[10] CNDDB September 2003. List of California Terrestrial Natural Communities Recognized by The California Natural Diversity Database. CDFG Habitat Data Analysis Branch, Vegetation Classification and Mapping Program.

[11] Sawyer Keeler-Wolf.

[12] Bureau of Land Management (BLM), 2003. Draft Environmental Impact Report and Statement for the West Mojave Plan, A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment. Vols. I and II. U.S. Dept Interior.

2.5.3 Agricultural Land

The western portion of the project site is agricultural land that is currently fallow. The agricultural land had previously been used to grow alfalfa and possibly other crops.

There are no watercourses, wetlands, springs, or seeps on the project site.

2.6 Current Land Management

Land management in the project area consists of private land managed for agriculture, public land administered by BLM, public land administered by BLM that is under protective withdrawal, and public land withdrawn as military reservation. The military reservation lands are used for training, testing and geothermal power production. The military lands are managed by the Department of Defense (DOD).

3 AFFECTED ENVIRONMENT

3.1 Methods

3.1.1 Literature Review

UltraSystems reviewed available literature to identify any special status plants, wildlife, or sensitive communities known from the vicinity of the project site. The review included the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California,[13] Calflora Database,[14] compendia of special-status species published by CDFG,[15,16] and the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB)[17] for the Coso Junction and Cactus Peak 7.5-minute series topographic quadrangles, and surrounding quadrangles (Haiwee Pass, Haiwee Reservoirs, Upper Centennial Flat, Coso Peak, Long Canyon, Petroglyph Canyon, Sacatar Canyon, Little Lake, Volcano Peak, and Airport Lake).

Special-status species include:

- Species listed as Threatened or Endangered under the Federal Endangered Species Act (ESA),
- Species proposed for listing as Threatened or Endangered under the ESA,
- Species listed by the State of California as Threatened, Endangered or Rare under the California Endangered Species Act (CESA),

[13]/ California Native Plant Society. 2001. Electronic Inventory of Rare and Endangered Vascular Plants of California (electronic records of sensitive species on the USGS 7.5' Condor Peak Quadrangle). California Native Plant Society, Sacramento.

[14]/ CalFlora: Information on California plants for education, research and conservation. [web application]. 2000. Berkeley, California: The CalFlora Database [a non-profit organization]. Available: http://www.calflora.org.

[15]/ California Department of Fish and Game (CDFG), Natural Diversity Data Base. 2003b. Special Plants. Unpublished report available from CDFG, Natural Heritage Division, Sacramento. January.

[16]/ California Department of Fish and Game, Natural Diversity Data Base. 2003c. Special Animals. Unpublished report available from CDFG, Natural Heritage Division, Sacramento. January.

[17]/ California Department of Fish and Game (CDFG), February 5, 2004. *Rarefind 2: A Database Application for the Use of the California Department of Fish and Game Natural Diversity Base*. Sacramento, CA: California Department of Fish and Game.

- Species proposed for listing as Threatened or Endangered under the CESA,
- Fully protected animals in California (CDFG Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]),
- CNPS List 1A, plants presumed extinct in California,
- CNPS List 1B, Rare or Endangered plants in California and elsewhere,
- CNPS List 2, Rare or Endangered plants in California, more common elsewhere,
- CNPS List 3, plants for which we need more information – review list,
- CNPS List 4, plants of limited distribution watch list,
- Forest Service Sensitive species, and
- BLM Sensitive Species.

3.1.2 Field Surveys

The entire project site was surveyed by vehicle and on foot on May 11, 12, and 13, 2004, by Dr. Robert Motschall, UltraSystems Senior Biologist; Jeff Kidd, Permitted Desert Tortoise Biologist; and Timothy Waldie, UltraSystems Biologist and CDFG Rare Plant Collection Permittee. The proposed substation site and connecting line route was surveyed by vehicle and on foot on February 23, 2005 by Gregg Miller, UltraSystems Senior Biologist, and Melissa Clemons, UltraSystems Biologist. The survey objectives were:

- (1) Review vegetation communities on and in the vicinity of the site,
- (2) General plant and wildlife survey, and
- (3) Special status plant and wildlife species survey.

During the surveys, particular focus was placed on locating sensitive biological resources including special-status species and their habitats. Potential impacts on biological resources were recorded. During the field surveys, plant and wildlife species were recorded.

A 50-foot wide corridor along the proposed pipeline alignment (approx. 10 miles) was surveyed for special-status species with a focus on desert tortoise, Mohave ground squirrel and sign of these species. Surveys were conducted on foot by two (2) qualified biologists by meandering and intersecting transects. An additional 50-feet (25' on each perimeter) were surveyed by random meandering transect by one (1) qualified biologist. All potential desert tortoise burrows within the survey area were located with a hand-held GPS unit and checked for tortoise activity using a fiber-optic scope. Data on burrow size and conditions were recorded, and each potential burrow was identified with a unique waypoint number using GPS. The pipeline alignment survey corridor was searched for sign of desert tortoise including scat, palettes, and old carapaces (shells). Wildlife and sign were identified and catalogued.

The approximately 20-acre area surrounding the approximately ¼ acre electric substation site and connection transmission line right-of-way was surveyed for habitat type and potential for special status species occurrence.

3.2 Results

3.2.1 Plant Communities

As noted previously there are three plant communities on the project site: creosote-white bursage scrub, allscale scrub and agricultural land. Plant species observed on the site are shown in Table 3.

Table 3
PLANT SPECIES OBSERVED ON THE PROJECT SITE

Scientific Name	Common Name
Acacia greggii	Catclaw Acacia
Ambrosia dumosa	White Bursage
Amsinckia tessellata	Bristly Fiddleneck
Artemisia spinescens	Bud Sage, Budsage
Atriplex canescens	Shadscale
Atriplex confertifolia	Spiny Saltbush
Atriplex parryi	Parry's Saltbush
Atriplex polycarpa	Allscale
Atriplex spinifera	Spinescale
Chrysothamnus teretifolius	Green Rabbit Brush
Echinocactus polycephalus var. polycephalus	Clustered Barrel Cactus
Ephedra californica	Ephedra
Erigeron compositus	Cut Leaf Daisy
Eriogonum brachyanthum	Short-Flowered Buckwheat
Eriogonum inflatum	Desert Trumpet
Eriogonum mohavense	Western Mojave Buckwheat
Eriogonum nidularium	Birdnest Buckwheat
Erodium botrys	Storksbill
Hymenoclea salsola	Cheesebush
Isomeris arborea	Bladderpod
Langoisia schottii	Schott's Calico
Larrea tridentata	Creosote
Nama demissum	Purple Mat
Opuntia basilaris	Beavertail
Opuntia bigelovii	Teddy Bear Cholla
Oryzopsis hymenoides	Indian Ricegrass
Phacelia bicolor var. bicolor	Trumpet Phacelia
Phacelia inyoensis	Inyo Phacelia
Physalis crassifolia	Thick-Leaved Ground Cherry
Ranunculus glaberrimus	Sagebrush Buttercup
Salvia carduacea	Sage Thistle
Salvia columbariae	Chia
Sphaeralcea ambigua	Desert Mallow
Suaeda calceoliformis	Pursh's Seepweed
Yucca brevifolia	Joshua Tree

Creosote-white bursage scrub on the project site contains widely spaced creosote bushes (*Larrea tridentata*) with white bursage shrubs (*Ambrosia dumosa*) as co-dominants. Creosote-white bursage scrub also contains teddy-bear cholla (*Opuntia bigelovii*), beavertail cactus (*Opuntia basilaris*) and

scattered Joshua trees (*Yucca brevifolia*). Creosote-white bursage scrub north of Coso Junction Road has been heavily grazed.

Allscale scrub on the project site is generally undisturbed with a developed understory. It contains bristly fiddleneck (*Amsinckia tessellata*), shadscale (*Atriplex canescens*), green rabbit brush (*Chrysothamnus teretifolius*), ephedra (*Ephedra californica*), desert trumpet (*Eriogonum inflatum*), cheesebush (*Hymenoclea salsola*) and numerous other plant species as shown in Table 1. The Allscale scrub north of Coso Junction Road has been heavily grazed.

Agricultural land on the project site is currently fallow. Alfalfa and possibly other crops were previously grown on the site using groundwater for irrigation.

3.2.2 Wildlife

The plant communities form the basis of the wildlife habitats of the project area. They provide the primary plant productivity upon which wildlife depends, along with nesting and denning sites, escape cover and protection from adverse weather. Many of the wildlife species that occur in the area use several of the plant communities to obtain all their life history needs.

In general, more complex plant communities, with more vegetation layers and more plant species, provide higher value wildlife habitat than less complex vegetation communities. More complex plant communities have more niches for wildlife and usually support more animal species than less complex communities.

Wildlife species observed on the project site are shown in Table 4.

The creosote bush scrub and Allscale plant communities in the proposed project area are expected to support many common desert species, including desert iguana (*Dipsosaurus dorsalis*), desert spiny lizard (*Sceloporus magister*), western brush lizard (*Urosaurus graciosus*), side-blotched lizard (*Uta stansburiana*), coachwhip (*Masticophis flagellum*), western patch-nosed snake (*Salvadora hexalepis*), California kingsnake (*Lampropeltis getula*), western shovel-nosed snake (*Chionactis occipitalis*), sidewinder (*Crotalus cerastes*), cactus mouse (*Peromyscus eremicus*), deer mouse (*Peromyscus maniculatus*), southern grasshopper mouse (*Onychomys torridus*), black-tailed jackrabbit (*Lepus californicus*), and desert cottontail (*Sylvilagus auduboni*). The proposed project area may provide foraging habitat for various bat species, including the California leaf-nosed bat (*Macrotus californicus*), spotted bat (*Euderma maculata*), Townsend's big-eared bat (*Corynorhinus townsendi*), Brazilian free-tailed bat (*Tadarida brasiliensis*), and the western mastiff bat (*Eumops perotis*). Additionally, the proposed project area provides foraging habitat for ravens (*Corvus corax*), loggerhead shrikes (*Lanius ludovicianus*), and various raptor species, including the red-tailed hawk (*Buteo jamaicensis*) and the prairie falcon (*Falco mexicanus*). [18,19,20]

[18]/ California Department of Fish and Game. California Interagency Wildlife Task Group. 2002. CWHR Version 8.0 Personal Computer Program: Sacramento, CA.

[19]/ Robert C. Stebbins, 1995. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company: Boston, MA.

[20]/ William H. Burt and Richard P. Grossenheider. 1976. A Field Guide to the Mammals of North America north of Mexico. Houghton Mifflin Company: Boston, MA.

Table 4
WILDLIFE SPECIES OBSERVED OR DETECTED BY SIGN
ON THE PROJECT SITE

Scientific Name	Common Name
Reptiles	
Callisaurus draconoides	Zebra Tail Lizard
Chionactis occipitalis	Western Shovel-Nosed Snake
Cnemidophorus tigris	Desert Whiptail
Dipsosaurus dorsalis	Desert Iguana
Gopherus agassizii	Desert Tortoise
Phrynosoma platyrhinos ssp. calidiarum	Desert Horned Lizard
Birds	
Buteo jamaicensis	Red-Tailed Hawk
Corvus corax	Raven
Eremophila alpestris	Horned Lark
Regulus calendula	Ruby-Crowned Kinglet
Salpinctes obsoletus	Rock Wren
Spizella atrogularis	Black-Chinned Sparrow
Wilsonia pusilla	Wilson's Warbler
Mammals	
Ammospermophilus leucurus	White-Tailed Antelope Ground Squirrel
Lepus californicus	Black-Tailed Jackrabbit
Neotoma lepida	Desert Woodrat
Vulpes macrotis	Kit Fox
Butterflies	
Brephidium exilis	Pygmy Blue
Pieris rapae	Cabbage White

3.2.3 Special-Status Species Background

The U.S. Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act (ESA). The ESA provides a process for listing species as either threatened or endangered, and methods of protecting listed species. The ESA defines as “endangered” any plant or animal species that is in danger of extinction throughout all or a significant portion of its range. A “threatened” species is a species that is likely to become endangered in the foreseeable future. A “proposed” species is one that has been officially proposed by USFWS for addition to the federal threatened and endangered species list.

Section 9 of the ESA prohibits “take” of threatened or endangered species. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Take can include disturbance to habitats used by a threatened or endangered species during any portion of its life history. Under the regulations of the ESA, the USFWS may authorize “take” when it is incidental to, but not the purpose of, an otherwise lawful act.

The California Department of Fish and Game administers the state Endangered Species Act. The State of California considers an endangered species one whose prospects of survival and reproduction are in immediate jeopardy, a threatened species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management, and a rare species is one present in such small numbers throughout its range that it may become endangered if its present environment worsens. Rare species applies to California native plants.

State threatened and endangered species are fully protected against take, as defined above. Species of Special Concern is an informal designation used by CDFG for some declining wildlife species that are not state candidates. This designation does not provide legal protection, but signifies that these species are recognized as sensitive by CDFG.

The California Native Plant Society (CNPS) has developed an inventory of California's sensitive plant species (Skinner and Pavlik 1994). This inventory summarizes information on the distribution, rarity, and endangerment of California's vascular plants. The inventory is divided into four lists based on the rarity of the species. In addition, the CNPS provides an inventory of plant communities that are considered sensitive by the state and federal resource agencies, academic institutions, and various conservation groups. Determination of the level of sensitivity is based on the number and size of remaining occurrences as well as recognized threats.

Sensitive habitats are natural communities that support concentrations of sensitive plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife. Sensitive habitats are not afforded legal protection unless they support protected species, except for wetland habitats which cannot be filled without authorization from the U.S. Army Corps of Engineers (USACE) and CDFG.

3.2.4 Threatened and Endangered Species

Mohave Ground Squirrel

The Mohave ground squirrel is a small diurnal ground squirrel found in the western Mojave Desert. The ground squirrel ranges from Palmdale in the south, to Olancha in the north, and from the town of Mojave eastward to Fort Irwin.[21] The Mohave ground squirrel occupies all major desert scrub habitats in the western Mojave Desert. It has been observed in Creosote Scrub, Desert Saltbush Scrub, Desert Sink Scrub, Desert Greasewood Scrub, Shadscale Scrub, and Joshua tree woodland.[22]

They spend the majority of the year in estivation to avoid temperature extremes and food scarcity. They are active above ground from early February for brief periods. Above ground activity increases in mid-March with the breeding season. Ground squirrels begin entering estivation by July with most above ground activity ending by August.[23]

Mohave ground squirrels were not observed during the field surveys. Burrows of appropriate size for Mohave ground squirrel were found during the surveys.

The Mohave ground squirrel is known to occur on the China Lake Naval Weapons Center and is expected to occur on the project site in creosote white bursage scrub and desert saltbush scrub habitats.

[21] Bureau of Land Management (BLM), 2003. Draft Environmental Impact Report and Statement for the West Mojave Plan, A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment. Vols. I and II. U.S. Dept Interior.
[22] BLM 2003
[23] BLM 2003

Desert Tortoise

The desert tortoise is an herbivorous reptile occurring in deserts of the southwest. The desert tortoise occurs throughout the Mojave and Colorado deserts in California Nevada, Utah, and Arizona. The preferred habitats of the tortoise are desert scrub, desert wash, and Joshua tree, but the tortoise is found in other desert habitats. Tortoises consume annual grasses and forbs and prefer green plants over dry plants.[24] Desert tortoises are mostly found in flats, valleys, bajadas, and rolling hills between 2,000 and 3,300 feet.[25]

Tortoises excavate and use burrows for protection from both high and low temperatures in the desert. Burrows are also used for winter hibernation. Friable soil is required for burrow and nest excavation. Tortoises mate in late March and early April, with eggs being laid in early summer. Eggs hatch in early fall generally coinciding with the growth of grasses and forbs from fall rains.[26]

Desert tortoise are known to occur on the China Lake Naval Weapons Center and in Rose Valley, although in lower densities than in more southerly portions of the tortoise's range.[27]

Desert tortoises were not observed during the field survey. Burrows of appropriate size ranging in 5" to 12" diameter consistent with that known for desert tortoise were flagged and examined along the proposed pipeline route approximately 50 m from the existing road. The flagged potential burrows were determined to be unoccupied and were of poor quality, evidenced by partial collapse or obvious disuse.

Although the chances seem small of encountering a desert tortoise within the construction area, preauthorizing a biologist qualified to move a tortoise is advised. The U.S. Fish and Wildlife Service field office must be notified in advance if a desert tortoise is to be moved.

3.2.5 Other Special-Status Species

Charlotte's Phacelia

Charlotte's phacelia is primarily found on the east slope of the southern Sierra Nevada Mountains to the El Paso Mountains. It is found west of the Sierra crest in the Lake Isabella watershed; locally, it is found in areas of Inyo County and on China Lake NWC.

Charlotte's phacelia occurs in pinyon-pine woodlands on steep, coarse sand and talus. It is generally found on granitic substrates, but occasionally on dark volcanic material and metamorphic rock. Charlotte's phacelia grows on naturally disturbed sites, including washes. It occurs at elevations of 2000 to 7200 feet. At lower elevations, Charlotte's phacelia is found in Mojave Desert scrub with creosote bush, beavertail cactus, and burrobush.

Charlotte's phacelia may occur on the project site.

[24] Zeiner et al. 1990.
[25] BLM 2003.
[26] Zeiner et al. 1990.
[27] BLM 2003.

Darwin Mesa Milk-Vetch

Darwin mesa milk-vetch is found in Desert Mountains (north and west of Panamint Valley, Inyo Co.). It occurs at elevations of 4288 – 7408 feet. It is found in a variety of habitats including pinyon pine, pinyon-juniper woodland, sagebrush scrub, and Joshua tree woodland and is usually found on volcanic clay or gravelly substrates.

Darwin mesa milk-vetch is not expected to occur on the project site.

Sanicle Cymopterus

Sanicle cymopterus is a small perennial herb from a buried root crown. It grows in loose sandy to gravelly, often somewhat alkaline soils on volcanic tuff deposits and mixed valley alluvium, typically inhabits small drainage-ways, in the blackbrush, mixed-shrub, sagebrush, and lower pinyon-juniper zones. It has been observed at elevations of 3,150 to 6,720 feet.

Sanicle Cymopterus may occur on the project site.

Inyo Hulsea

Inyo hulsea is known from the Inyo, Coso, and Panamint Mountains, in Inyo County. Known locations of Inyo hulsea are sparse because due to inaccessibility and administrative prohibitions against entry collection on military lands. The Coso Mountains location is based on an 1893 collection and the plant is likely to occur in the mountains within the China Lake NWC.

Inyo hulsea occurs between 4,600 and 7,300 feet in elevation. It is found on steep, unstable, sandy or rocky slopes and sometimes in washes in high desert shrublands and pinyon woodlands. Associated species include big sagebrush, saltbush, rabbitbrush, single-needle pinion, and antelope brush.

This species has potential to occur within the project boundaries at the higher elevations.

Pinyon Rock Cress

Pinyon rock cress can be found in Joshua tree woodland, pinyon-juniper woodland, Mojave Desert scrub, and creosote brush scrub. It occurs in Inyo, Mono, San Bernardino, and Tulare counties. It is found at elevations of 3,940 to 7,870 feet in habitats that have granitic, gravelly slopes and mesas. Pinyon rock cress is often found under desert shrubs, which support it as it grows.

Pinyon rock cress has the potential to occur on the project site in the higher elevations of creosote–white bursage scrub.

Creamy Blazing Star

Creamy blazing star is found in central Mojave Desert scrub, specifically creosote-bush scrub at elevations of 2,300 to 3,800 feet.

Creamy blazing star has the potential to occur on the project site.

Townsend's Big-Eared Bat

The Townsend's big-eared bat occurs throughout California from the humid forests in the northwest portion of the state to the drier portions of the state from the Central Valley through the Sierra Nevada Mountains to the deserts of the southeast part of the state.[28] The pale big-eared bat is a cave dwelling bat that is found in a variety of habitats; typically open habitats such as shrubland, shrub-steppe or desert scrub. Big-eared bats require caves, mines, tunnels, buildings or other man-made structures for roosting. They may use separate sites for night, day, hibernation, or maternity roosts. Maternity sites are in relatively warm, well-ventilated sites and births occur in May and June. The Townsend's big-eared bat exhibits a high degree of site fidelity, returning year after year to the same maternity roosts. Big-eared bats hibernate from October to April.[29] There are 12 known big-eared bat roost sites east of the Sierra Nevada Mountains (Mono, Inyo, northeast Kern, and northwestern San Bernardino Counties). Eleven of the 12 are located in mines, largely on public lands.[30]

The pale big-eared bat may forage over the site. However, because of the absence of suitable roost sites, the pale big-eared bat is not expected to roost on the project site.

Owens Valley Vole

The Owens Valley vole, a subspecies of the California vole, is found in the Owens Valley and areas to the south.[31] Voles breed throughout the year, and reach population peaks if food and cover are abundant. Voles forage on the ground feeding on leafy parts of grasses, sedges, and herbs. They clip grasses and forbs at the base, which forms a network of runways around their burrows. The Owens Valley vole is found in wetlands and dense grass habitats in the Owens Valley.[32] The CNDDB contains twelve occurrences of the Owens Valley vole, largely from historic records, ranging from the Bishop area in the north to Little Lake in the south.

Although the site is within the historic range of the Owens Valley vole, the vole is not expected to occur on site due to the absence of suitable habitat.

3.3 Land Management

The western portion (approximately 10 acres) of the project site is private land that has been managed for agriculture, but is currently fallow.

The eastern portion (approximately 55 acres) of the project site is federal land that is administered by BLM. The BLM administered land includes land under protective withdrawal and land withdrawn as military reservation. The military reservation land (approximately 19 acres) is managed by the Department of Defense (DOD) and is used for military training, weapons testing, and geothermal power production.

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[28] California Department of Fish and Game, 1986. Mammalian Species of Special Concern in California.
[29] CDFG 1986
[30] Pierson, E.D. and W.E. Rainey, 1994. Distribution, Status, and Management of Townsend's Big-Eared Bat *(Corynorhinus townsendi)* in California. California Department of Fish and Game, Bird and Mammal Conservation Program. BMCP Tech. Rep. 96-7.

[31] CNDDB 2004
[32] CNDDB 2004

4 ENVIRONMENTAL CONSEQUENCES

4.1 Effects on Plants Communities

Approximately 5 acres of plant communities would be permanently affected, and approximately 60 acres of plant communities will be temporarily affected by the proposed pipeline project.

No special status plants would be affected by the proposed project.

4.2 Effects on Wildlife

Approximately 5 acres of wildlife habitat will be permanently affected, and approximately 60 acres of wildlife habitat will be temporarily affected by the proposed pipeline project.

4.3 Effects on Threatened and Endangered Species

No threatened or endangered plant species would be affected by the proposed project.

Mohave ground squirrel and desert tortoise could be directly affected during construction of the pipeline. Individual Mohave ground squirrel or desert tortoise could potentially be killed or injured in burrows or above ground during construction. Implementing the proposed mitigation is expected to avoid directly affecting Mohave ground squirrel or desert tortoise.

The proposed project is expected to permanently impact approximately 5 acres and temporarily affect approximately 60 acres of potential habitat for Mohave ground squirrel and desert tortoise.

4.4 Effects on Other Special-Status Species

No special status plant species that are not listed as threatened or endangered would be affected by the proposed project.

5 PROPOSED MITIGATION

Mitigation for permanent impacts on 5 acres and temporary impacts on 60 acres of Mohave ground squirrel and desert tortoise habitat is covered under the existing Mohave Ground Squirrel Mitigation Plan for development of the Coso Known Geothermal Area. The Mitigation Plan allows for construction or disturbance of up to 2,100 acres. The impacts are within the allowed acreage for the Mitigation Plan.

The pipeline was redesigned to avoid the potentially viable desert tortoise burrow (Waypoint #34).

The following mitigation measures are proposed:

- The potentially viable desert tortoise burrow (Waypoint #34) will be flagged for protection during construction.
- A tortoise-proof exclusion fence will be constructed around the proposed project construction area including laydown and stockpile sites in potential tortoise habitat. Immediately prior to

construction, clearance surveys will be conducted for the desert tortoise and all desert tortoises within the exclusion fence will be relocated outside the fence.

- Desert tortoise surveys, handling and relocation will be conducted by a trained biologist approved by resource agencies for handling and relocation of desert tortoise. Only tortoises in the construction area or otherwise in harm's way will be relocated.
- Because adult tortoises are most likely to be active above ground from February 15 to November 15 and least likely from November 16 to February 14, preconstruction surveys will be conducted within 48 hours before construction from February 15 to November 15 and will be done within two weeks prior to construction between November 16 and February 14.
- All potential tortoise burrows in the construction zone, including those not recently used, shall be excavated by an approved biologist at the time of the survey.
- An environmental monitor will be present and will monitor all construction activities.
- If a recently dead or injured desert tortoise is found the approved biologist shall immediately notify the USFWS and CDFG.
- Construction personnel will look for desert tortoises under vehicles and equipment before they are moved. If a desert tortoise is present, the vehicle will not be moved until the tortoise has moved from under the vehicle and out of harm's way, or the approved biologist has relocated the tortoise.
- Trash and food items shall be contained in closed containers and regularly removed to reduce the attractiveness of the area to opportunistic predators such as common ravens, coyotes and feral dogs.
- Pets will be prohibited from the construction site.
- The top 8 inches of removed soil will be salvaged and stockpiled on site. Following construction the salvaged topsoil will be used as final cover over the pipeline.
- Following construction, the pipeline corridor will be restored based on the existing approved restoration plan.
- All construction workers will participate in a Mohave ground squirrel and desert tortoise education program prior to construction. The program will include identification, basic biology, general behavior, local distribution, sensitivity to human activities, legal protection, penalties for violating State or federal laws, impact avoidance methods, and reporting requirements. Construction personnel will be instructed not to handle desert tortoise.
- Driving off established roads will be prohibited unless required by construction activities.
- Vehicle speeds shall not exceed 25 miles per hour through desert tortoise habitat unless otherwise posted.
- Prior to construction the pipeline route will be surveyed for nesting horned larks and other ground nesting birds. If nests are located a 50 feet buffer around the nest will be flagged. No construction will occur within the buffer until monitoring indicates that the young have fledged and the nest is no longer active.

6 RESIDUAL EFFECTS

No residual effects are expected to special-status species or their habitats following implementation of the proposed mitigation measures.

7 CUMULATIVE EFFECTS

No cumulative effects are expected to special-status species or their habitats following implementation of the proposed mitigation measures.

8 CONCLUSIONS

Implementation of the proposed project and the mitigation measures is not expected to affect species that are listed as threatened or endangered by the federal or state governments.